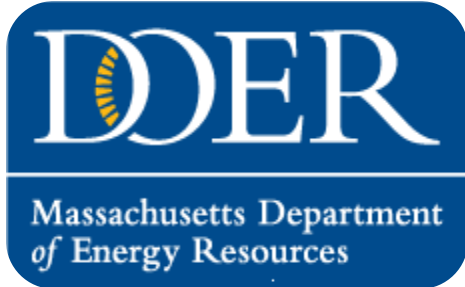


Creating A Cleaner Energy Future For the Commonwealth



Leading by Example Council Meeting

November 17, 2015

Agenda

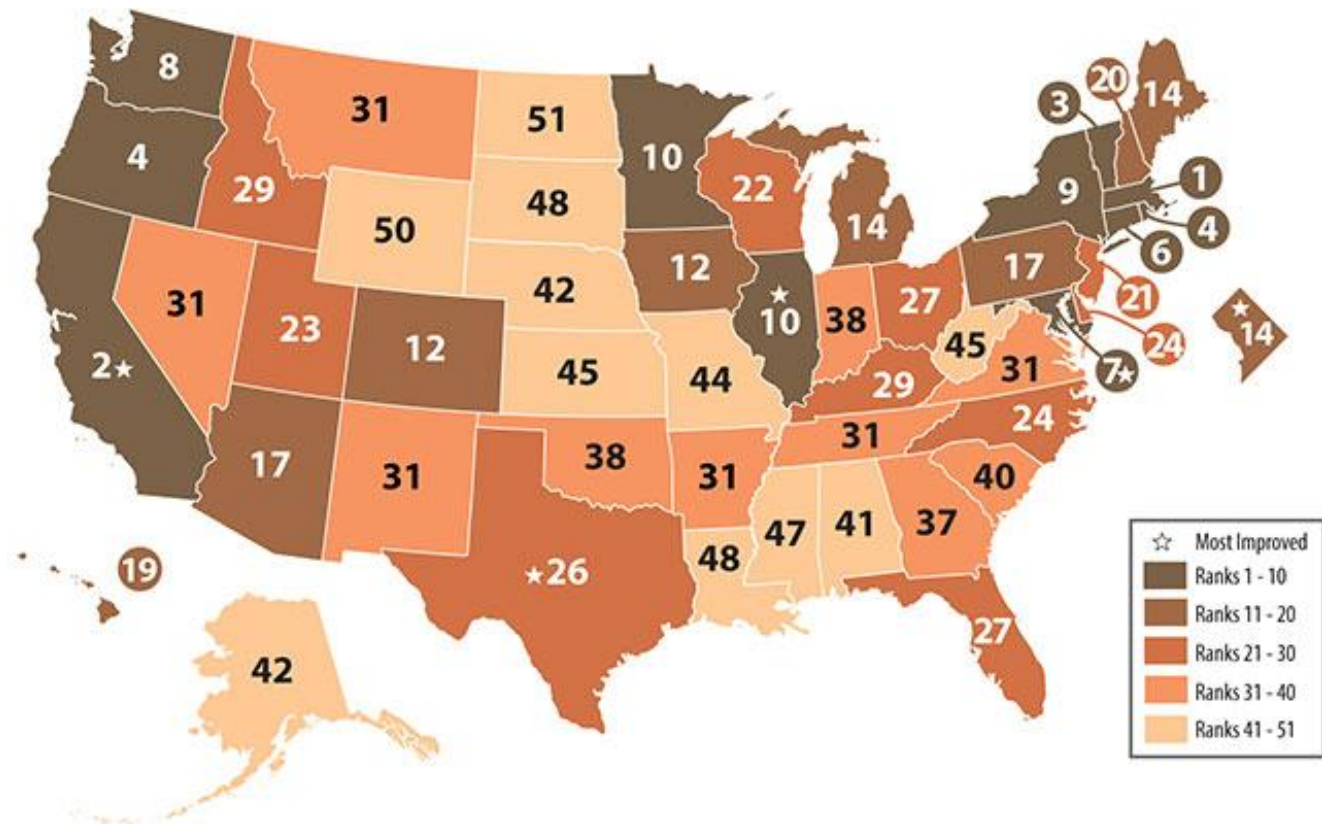
- Welcome and Introductions
- MA Policy Updates
- Environmentally Preferable Products Overview
- LBE Partner Spotlights
- New Ideas for Discussion
- LBE Updates
- DCAMM Updates
- UMass Boston University Hall Overview
- Building Tour



Policy Updates

Commonwealth Leadership

- MA ranked as most “energy-efficient state” for **5th consecutive year**
- Ranking produced by American Council for an Energy-Efficient Economy (ACEEE)



Staffing Updates

- Daniel Knapik, new Director of Green Communities Division
 - Served as Mayor of Westfield since 2010

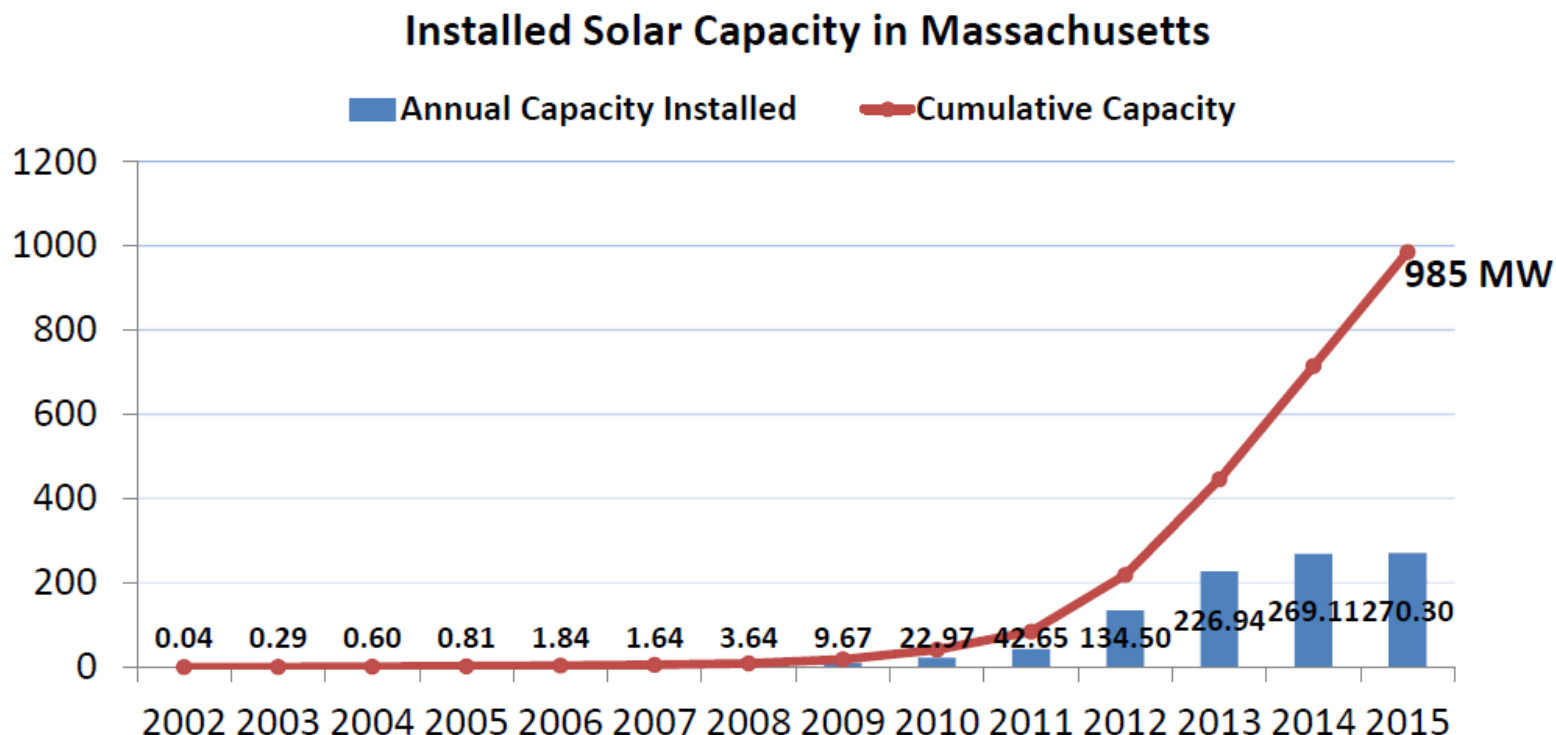
DOER Job Postings

- **Renewable Thermal Program Coordinator**
 - Coordinate the successful implementation of renewable thermal project and market development
- **Energy Storage and Resiliency Program Coordinator**
 - Participate in and coordinate efforts to support the Community Clean Energy Resiliency Initiative and the Energy Storage Initiative
- **Staff Attorney (2 postings)**



Massachusetts Department
of Energy Resources

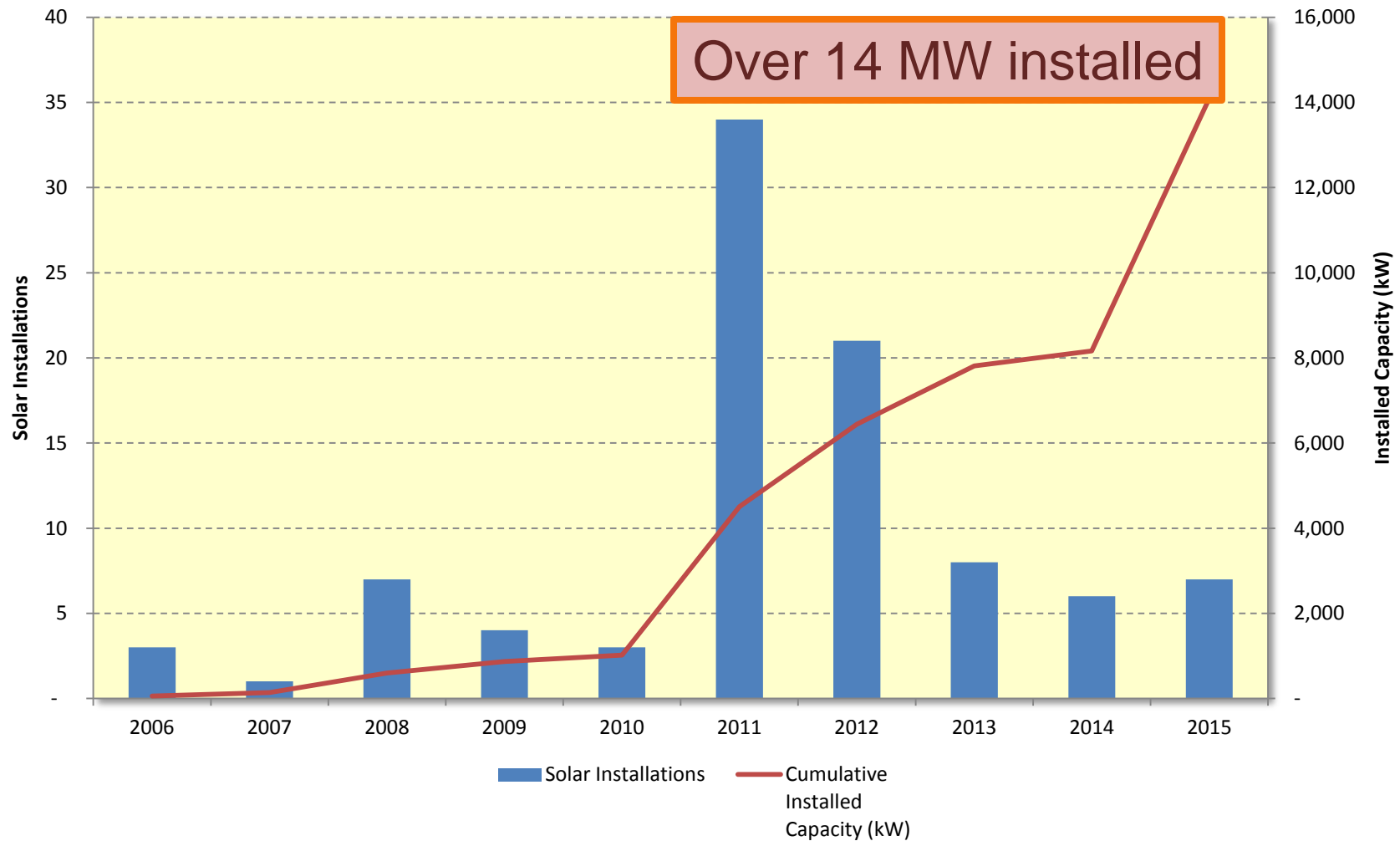
Statewide Solar Installations



Massachusetts has an aggressive target of 1600 MW of solar power installed for 2020. The above figures represent the cumulative amount installed as of November 2015, in 35,937 projects.

Up from 923 MW in September

Solar Installations at State Facilities



Massachusetts Department
of Energy Resources

Creating A Cleaner Energy Future For the Commonwealth

Solar Installations at State Facilities

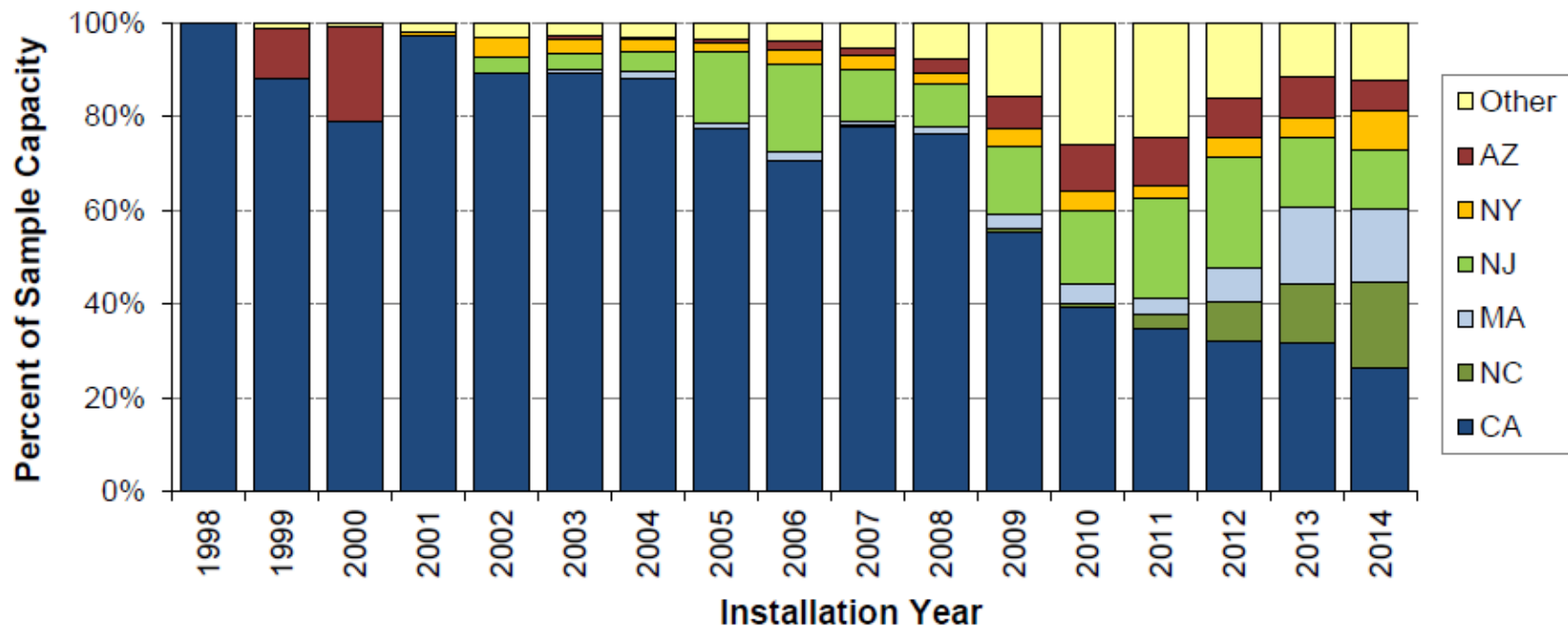


Bristol CC Solar Canopy:
Gov. Baker at 3.2 MW solar
canopy ribbon cutting

MassDOT Right of Way Solar:
271 kW solar PV along I-90 in
Natick part of 5 installations
totaling 2.4 MW



Geographic Distribution of 2014 Solar Installations



Note: The data sample includes systems installed across 42 states.

Sample capacity additions in 2014 are distributed across California (27%), North Carolina (18%), Massachusetts (16%), New Jersey (13%), New York (8%), Arizona (7%), and all other states (12%)

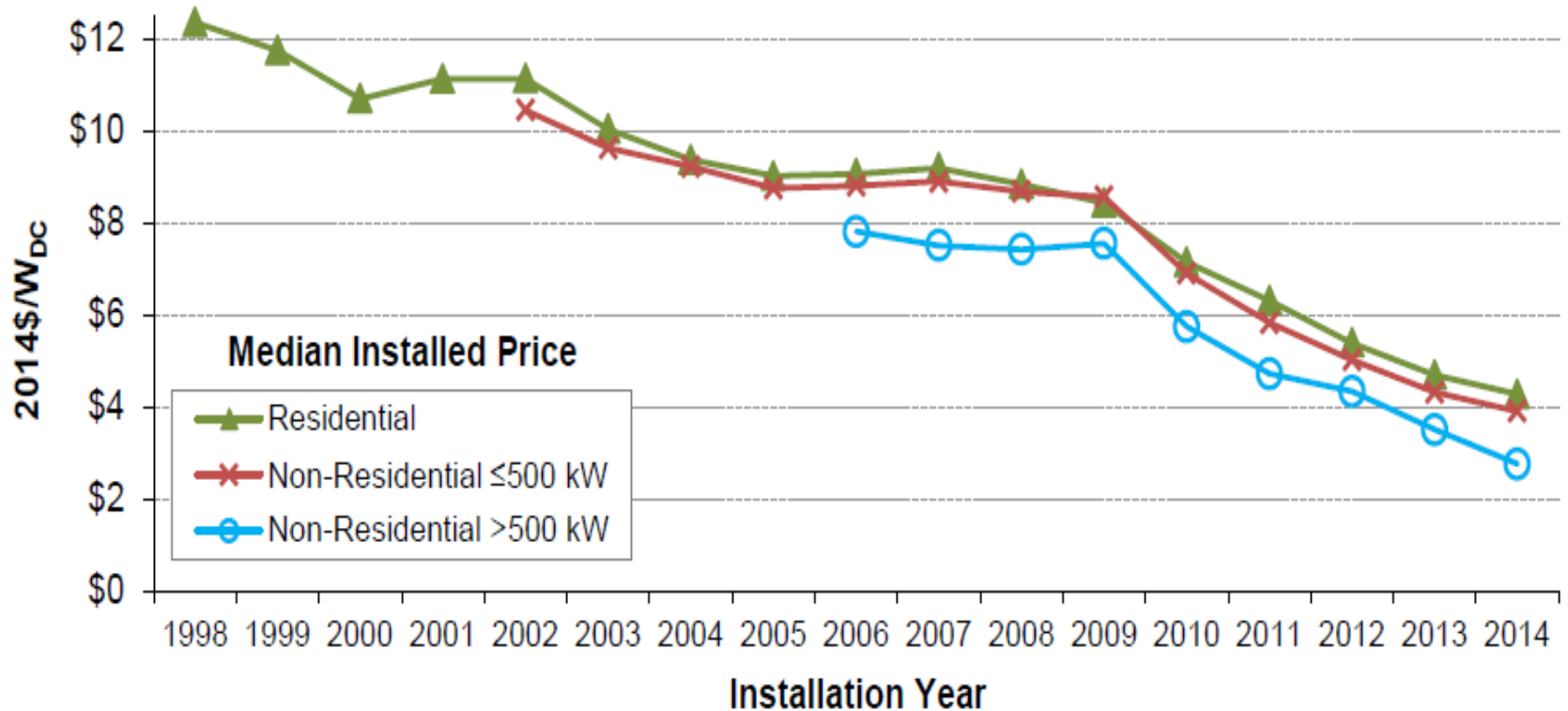
Source:
[Tracking the Sun VIII \(2015\), p. 11](#)
Lawrence Berkley National Lab

Creating A Cleaner Energy Future For the Commonwealth



Massachusetts Department
of Energy Resources

Solar Installed Price Trends



Source:
[Tracking the Sun VIII \(2015\), p. 15](#)
Lawrence Berkley National Lab

Creating A Cleaner Energy Future For the Commonwealth

DOER

Massachusetts Department
of Energy Resources

Solar Policy Updates

Senate legislation passed

- Eliminates all utility solar caps
- Directs DOER to develop a long-term incentive program after 1600 MW
- Gives DPU authority to address distribution portion of net metering credit

Governor's bill introduced

- Raises cap 2% for public and 2% for private projects
- Directs DOER to develop a long-term solar incentive program, including possibility of tariff based program post 1600 MW
- After 1600 MW, proposes changes to net metering credit value
 - <25 kW no change
 - Community shared solar, low income and public – basic service supply
 - Other – average monthly ISO clearing price (e.g. wholesale)



Massachusetts Department
of Energy Resources

Residential Solar Loan Program

- DOER and MassCEC partnership
 - DOER funding and program design, MassCEC as central administrator
- Loan terms may vary, approved homeowners can expect:
 - Interest rate of 3% or lower
 - Loan between \$3,000 and \$35,000 (or potentially higher)
 - Loan term of up to 10 years or more
- Program launch expected soon
- More information:
masssolarloan.com



Source: MassCEC



Massachusetts Department
of Energy Resources

Funding for Greentown Labs

- Cleantech incubator in Somerville
- \$1.5 million loan to Greentown Labs, supporting \$11 million expansion
- About 40 startups currently, investment aims to add additional 40-100
- About 400 workers currently employed, investment hopes to add additional 385



GREENTOWNLABS



Massachusetts Department
of Energy Resources

MA Food System Plan

- Draft plan released in Oct., final plan to be submitted to MA Food Policy Council in Dec.
- First food system plan for state since 1974
- Four main goals (draft):
 - Increase production of MA-grown foods
 - Create food and farming jobs in MA
 - **Protect land and water needed to produce food**
 - Reduce hunger and food insecurity



Creating A Cleaner Energy Future For the Commonwealth



Massachusetts Department
of Energy Resources

College and University Presidents' Climate Commitment



The Climate Commitment

Integrates a goal of carbon neutrality with climate resilience and provides a systems approach to mitigating and adapting to a changing climate. Designed to blend these two critical components of climate leadership.



The Carbon Commitment

Focused on reducing the emissions of harmful greenhouse gases to zero and mitigating campuses' contribution to climate change.



The Resilience Commitment

Focused on climate adaptation-specific goals, as well as building community capacity to deal with a constantly changing climate and resulting extremes.

Source: [Second Nature](#)

Climate Commitment

- Presidents' Climate Commitment signatories now called "Carbon Commitment"

**Carbon Commitment + (new) Resilience Commitment =
(new) Climate Commitment**

- Climate Charter Period open until January 4, 2016
- Resilience Charter Period open until April 22, 2016

Source: [Second Nature](#)

Environmentally Preferable Products (EPP) Procurement Program

Serving Public Buyers and Vendors of the Commonwealth of Massachusetts



Agenda

- EPP Program Overview
- What's on contract and where can I find it?





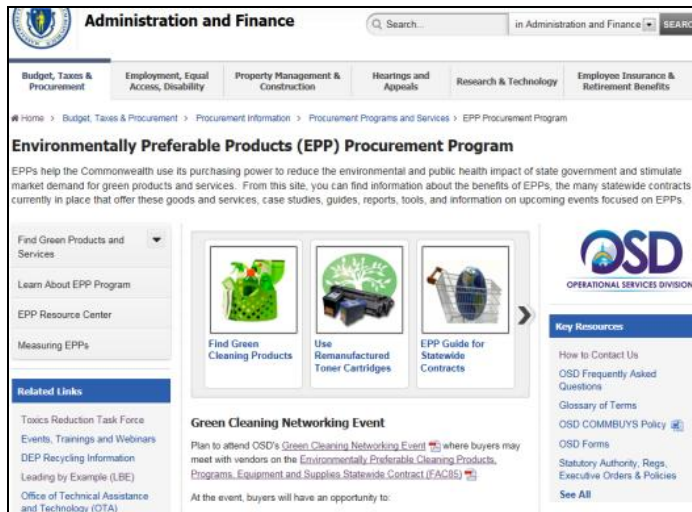
What are EPP's: Environmentally Preferable Products are products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.

- Recycled Content
- Less toxic
- Energy efficient
- Reduce waste
- Biodegradable
- Conserve water
- More durable
- =Cost Savings



EO 515

Implement *EO 515: Establishing an Environmentally Preferable Purchasing Policy (2009)*

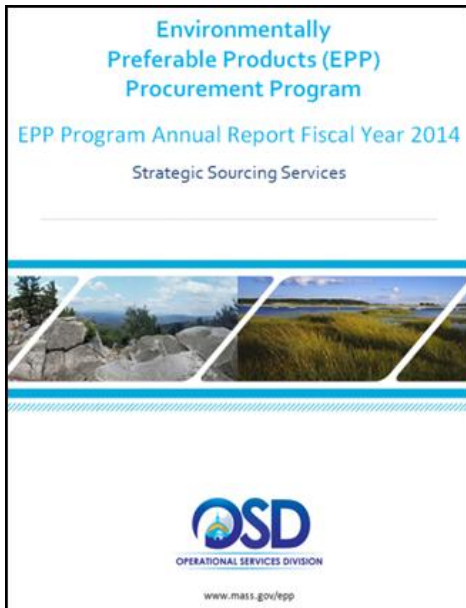


- Integrate EPP spec's into SWC (over 40 contracts with EPP's)
- Designate products as EPP
- Facilitate Toxics Reduction Task Force
- Work with LBE and other programs
- Promote EPP's on SWC
- Report annually on statewide EPP purchases
- Cooperate with ntl. EPP initiatives to advance green

FY14 Achievements



OPERATIONAL SERVICES DIVISION



\$402 M in purchases

\$18 M savings through purchase of the following EPP's:

\$16.57 M savings
(Energy Costs and Labor Reductions from Energy Efficient Lighting)

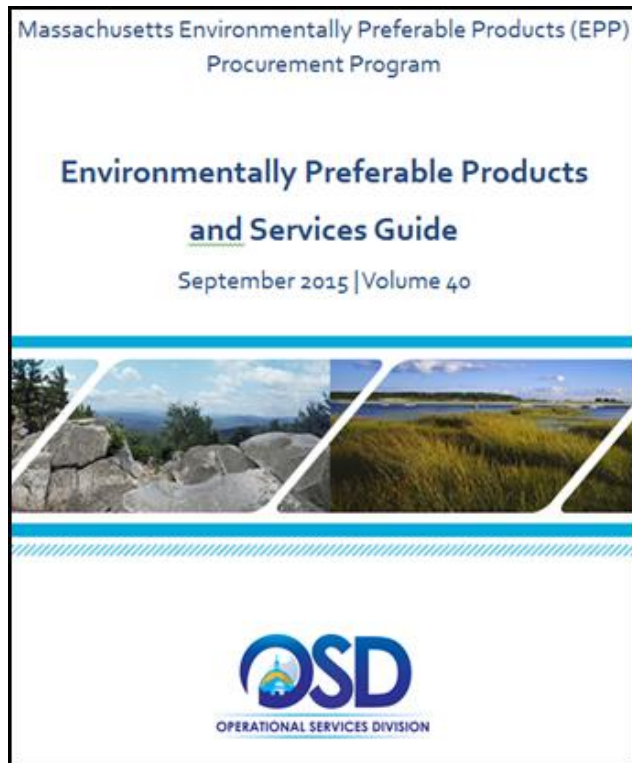
\$1.113 M savings
(Energy Cost from Energy Efficient Computers, Laptops and Monitors)

\$315,252 Savings
(Purchasing remanufactured toner cartridges)

17,500 tons of waste diverted from disposal to recycling.

Reduction of 106,500 MTCE by switching to a variety of environmentally preferable products

Find EPP's on SWC



- Use the Environmentally Preferable Products and Services Guide!
- www.mass.gov/epp

Environmentally Preferable Products

- Clothing, Environmentally Preferable
- Toilets, Composting/Portable
- Bio-Diesel Fuel
- Heating Oil - B5 Bio-heat
- Propane
- Ultra-Low Sulfur Diesel
- Trash Bags, Plastic, Imprinted, Recycled
- Building Materials and Supplies
- Electrical and Lighting Supplies and Equipment, Energy Efficient
- Industrial/Commercial Supplies
- Plumbing, Heating, and HVAC Supplies
- Alternative Snow and Ice Products
- Plastic Lumber, Recycled
- Fertilizers, Organic and Other Environmentally Preferable Landscaping Applications
- Landscaping Applications/Products, Environmentally Preferable
- Water Treatment Technologies, Alternative
- Cleaning Products, Programs, Equipment, and Supplies, Environmentally Preferable
- Recycling Containers and Compost Bins
- Lawns and Grounds, Equipment (EPP)
- Foodservice Equipment – Related Maintenance and Repair Services
- Foodservice Supplies and Equipment/Institutional Grade Products
- Organic Food
- Organic Dairy Products
- Organic Baked Goods
- Water: Bottled, Emergency Bottled, Water Filtration Services, Reverse Osmosis Systems
- Hospital Supplies, Remanufactured or Used
- Computers, Laptops, Peripherals
- Computers, desktop and laptops, new, used and refurbished
- Glass Spheres (Beads), Recycled
- Photocopiers, Printers, Facsimile and Multifunctional Equipment
- Toner Cartridges, Remanufactured
- Art and Instructional School Supplies, environmentally preferable
- Office Supplies
- Furniture, Environmentally Preferable
- Printed Promotional Products, Environmentally Preferable
- Vehicles, Hybrid & Other Alternative Fuel
- Traffic Cones and Safety Products, Recycled
- Antifreeze (Remanufactured), Re-Refined Motor Oil, and Other Lubricants
- Bio-based Lubricants, Equipment and Automotive
- Motor Oil, Re-Refined, Antifreeze and Other Lubricants
- Vehicle Parts, Motorized Parts

Environmentally Preferable Services

- Facility Maintenance, Operation and Energy Advisory Services
- Environmental Diagnostic Testing and Monitoring
- Integrated Pest Management (IPM)
- Landscaping Services: Irrigation, Tree Trimming, Catch Basin Cleaning, & Snow Removal
- Moving and State Surplus Disposal Services
- Cleaning Services, Janitorial, Environmentally Preferable
- Computer/Electronics Recycling
- Fire Extinguisher Recycling
- Hazardous Waste Recycling
- Propane Tank Recycling
- Universal Waste, Mercury and Battery Recycling
- Renewable/Alternative Energy Credit Contract
- Solid Waste and Recycling Services
- Scrap Tire Removal / Disposal Services
- Demand Response Services
- Mattress Recycling
- Catering Services: General, with Conference Space, and with Conference and Hotel Accommodations
- Ammunition Recycling
- Body Armor Vest Recycling
- Small Package Delivery Services
- Print, Copy & Mail Services
- Windshield and Glass Recycling for Vehicles
- Vehicles, Short-term Rental
- Environmental Management Consultant, Program Coordinator, and Planner Services
- Scrap Metal, Sale and Disposal
- Fuel Card & Fuel Management Services
- Integrated Pest Management for Turf and Landscaping
- Antifreeze Recycling
- Oil Waste Recycling

Categories of EPP's

- **CLT** - Clothing and Footwear
- **ENE** - Energy, Utilities and Fuel
- **FAC** - Facilities Maintenance and Repair
- **GRO** - Food and Groceries
- **HSP** - Healthcare, Lab & Dental Products
- **ITC** - Information Technology - Hardware
- **LAW** – Public Safety, Law Enforcement and Safety
- **OFF** - Office, Recreation & Educational Supplies
- **OVM** - Vehicles, Transportation & Road Maintenance
- **PRF** - Professional Services
- **VEH** - Vehicles, Transportation & Road Maintenance

CLT: Clothing and Footwear

Clothing

CLT07: Clothing, Uniforms, Footwear, Accessories and Personal Care Products

- **Category 11: Environmentally Preferable Clothing**
 - recycled materials (e.g. recycled polyester and/or PET plastic);
 - organically grown cotton
 - bleached without the use of chlorine, or similar environmental attribute.
 - Such products typically represent a significant energy savings in the manufacturing process and may not require dry cleaning, which may help reduce the use of toxic chemicals.



ENE - Energy, Utilities and Fuel

- **ENE34:#2 Heating Oil, B5 Bioheat®**
 - Home heating oil blended with 5% biofuel.
 - Biofuel: vegetable oils, animal fats, or used cooking oils – as opposed to fossil fuel.
 - Bioheat® used in home heating oil equipment in exactly the same manner as standard heating oil with no equipment modifications needed
 - Regulated by BQ-9000 (voluntary quality control program for vendors and manufacturers that requires compliance testing with ASTM D6751 and includes storage, sampling, testing, blending, shipping, distribution, and fuel management best practices.
 - Available in Zones 1, 2, and 3 for will-call only with a minimum 500 gallon delivery.
- **ENE35: Propane**
 - Liquefied petroleum gas (LPG), a clean-burning fossil fuel used to power internal combustion engines.
 - LPG usually is less expensive than gas, comes from domestic sources, less greenhouse gasses, & can be used without degrading vehicle performance.



ENE - Energy, Utilities and Fuel

ENE40: Ultra-Low Sulfur and Bio-Diesel

- **Ultra Low Sulfur Diesel (ULSD)**

- EPA standard for sulfur content ULSD (15 ppm)
- May be used with emission control retrofit devices, reducing emissions of oxides of nitrogen and particulates (contribute to asthma and other respiratory illness).

- **Bio-Diesel**

- Renewable fuel made from agricultural resources, vegetable oils, and/or animal fats, available in blends of B5, B10, B15, and B20 (20% biodiesel, 80% ULSD when available) for spring and summer months. Regulated by BQ-9000.
- Biodiesel reduces particulate matter and tailpipe emissions that impact climate change (such as carbon dioxide (CO₂) - although some increase in nitrogen dioxide (NO_x) may occur depending on the duty cycle of the engine).
- Biodiesel is nontoxic, biodegradable, and suitable for sensitive environments, making biodiesel spills far less harmful to the environment and much less expensive to clean up than a diesel spill.

FAC – Fac Maint. and Repair

Contracts:

FAC55designatedDEP: Imprinted Plastic Trash Bags, Recycled

FAC74: Integrated Pest Management

FAC76: Maintenance Repair and Operations

FAC77: Landscaping Services, Tree Trimming, Catch Basin Cleaning, Snow Removal and Related Services

FAC78: Moving Services and State Surplus Disposal Services

FAC79: Landscaping and Green Roof Products, Playground Equipment, Site Amenities and Related Products

FAC80: Water Treatment Chemicals and Systems

FAC81: Janitorial Services - Environmentally Preferable

FAC82: Hazardous, Medical, Hard-To-Manage Waste Collection, Disposal/Emergency Response

FAC83designatedDCAMM: Renewable/Alternative Energy Credit Contract

FAC85: Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies

FAC86: Solid Waste and Recycling Services

FAC87designatedDEP: Recycling Containers and Compost Bins

FAC88: Lawns & Ground Equipment, Parts and Services

FAC89designatedDCAMM: Demand Response Services

FAC90designatedDEP: Mattress Recycling

FAC – Fac Maint. and Repair

Waste/Recycling Contracts:

FAC82 Categories
1 - Hazardous Materials Collection and Disposal
2 - Hazardous Waste Collection Events (HHW)
3 - Universal Waste (except pesticides): Mercury Waste & Batteries
4a - Sharps Collection and Disposal (including Sharps Kiosks) and 4b - Sharps Mail-In
5 - Onsite Medical Waste Treatment Systems
6 - Medical Waste Collection and Disposal
7 - Electronic Waste
8 - Tanks, Above Ground and Underground Storage (AST/UST)
9 - Emergency Response.

FAC55designatedDEP: Imprinted Plastic Trash Bags, Recycled

- Mostly for PAYT communities

FAC78: Moving Services and State Surplus Disposal Services

- Cardboard with at least 35% PCRC
- EPA's SmartWay Transport Partnership

FAC82: Hazardous, Medical, Hard-To-Manage Waste Collection, Disposal/Emergency Response:

- Collection, management, recycling , and disposal of a number of hazardous and medical wastes.
- Possible revenue generation, equate to rebates and cost savings for contract users
- All electronic waste vendors either R2 and/or E-Stewards certified for responsible handling of hazardous e-waste.

FAC – Fac Maint. and Repair

FAC86: Solid Waste and Recycling:

- MSW, Bulky waste
- Many recycling services: NEW - wood, scrap tires, floating vegetation, redeemable bottles and cans, mattress recycling, and event recycling.
- Resource Management Services

FAC87designatedDEP: Recycling Containers and Compost Bins

- Bulk purchases of recycled content bins
- (can also purchase small orders of bins on FAC85)

FAC90designatedDEP: Mattress Recycling



RECYLCING
White Office Paper
Street Sweepings
Mixed Paper
White Goods
Paper Shredding/ Secure Document & Media Destruction
Construction & Demo (C & D), including Clean Gypsum Wallboard
Old Corrugated Cardboard
Asphalt, Brick, Concrete (ABC)
Metal Cans & Containers
Wood
Glass Containers
Tires
Plastic Bottles & Containers
Mattresses
Organic--Leaves, Yard Waste, & Floating Vegetation
Redeemable Bottles & Cans
Organic--Food Waste
Scrap Metal
Textiles

FAC – Fac Maint. and Repair

Integrated Pest Management

FAC74: Integrated Pest Management:

- Indoor integrated pest management
- Re-bidding now

FAC77: Landscaping Services, Tree Trimming, Catch Basin Cleaning, Snow Removal and Related Services

- Outdoor: Turf and Landscape integrated pest management (IPM)

IPM

- Use current, comprehensive information on the life cycles of pests and their interaction with the environment in combination with available pest control methods to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.
- Applied to agricultural and non-agricultural settings, such as the home, garden, and workplace:
- **The Children Protection Act of 2000:** 333 CMR 14.00 is to promote the implementation of IPM Techniques and establishes standards, requirements, and procedures for use of pesticides within a school, daycare center or school-age child care program facility.
- [Governor's Executive Order #403 \(2003\)](#): mandates the use of IPM in all state buildings and facilities.

FAC – Fac Maint. and Repair

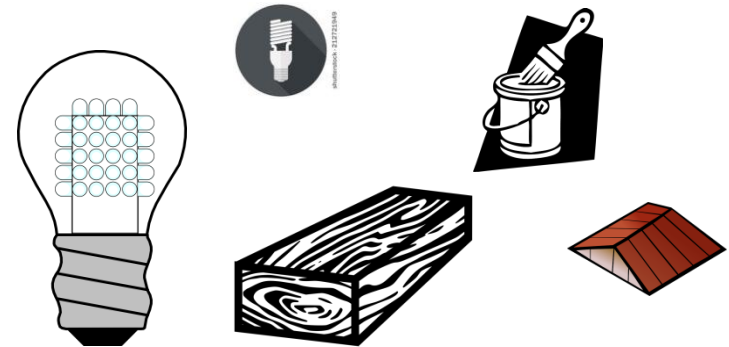
Facility Care:

FAC76: Maintenance Repair and Operations

Very large contract:

- Walk-In Building Materials and Supplies
- Electrical and Lighting Products and Supplies
- Industrial and Commercial Products and Supplies
- Plumbing and Heating Products and Supplies
- HVAC and Refrigeration Products and Supplies
- LED Roadway and Outdoor Area Lighting
- Specialty Products

Re-bidding now



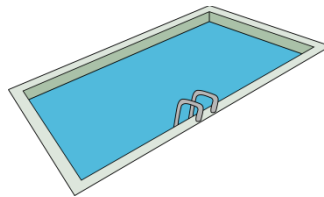
Energy Efficient Lighting (CFL & LED)
Programmable Thermostats
Energy Star Light Fixtures
Non-Chloride De-icing Chemicals
Plastic Lumber
Paint (reprocessed, low VOC)
Sustainable Roofing Materials

FAC – Fac Maint. and Repair

FAC80: Water Treatment Chemicals and Systems

Chemical-free system for cooling towers, a salt water generation technology and ionization system for swimming pools, outdoor water fountain treatment system that may reduce the use of chlorine by 70%.

- **Pool Ionization**, EPP alternative to the traditionally heavy use of chlorine and other chemicals. Used in some DCR Facilities. Ionization in swimming pools is process of using a low-voltage current to disperse positively charged copper and silver ions into the water. Since bacteria are negatively charged, the silver and copper ions penetrate the cell walls and help destroy microorganisms. Ionization systems result in a reduction of up to 80% in the use of chlorine.
- **Pool Ozonation** breaks down chloramines and mineral and sediment buildup while assuring the elimination of 100% of all bacteria, viruses, algae, and fungi. Ozone is made by passing oxygen through a corona discharge (an electrical discharge that indicates ionization of oxygen and the formation of ozone in the surrounding air). Ozonation technology significantly reduces chlorine use.
- **Salt Water Chlorination** replaces the use of the hazardous and costly sodium hypochlorite (also known as chlorine bleach) with sodium chloride (also known as salt). Using salt to produce chlorine for pools is safer and cheaper. Salt water chlorination systems are already at work in Massachusetts.



FAC – Fac Maint. and Repair

3d Party Certifications Required:

- GreenSeal
- UL Ecologo
- Safer Choice
- Biodegradable Products Institute
- Energy Star
- Carpet and Rug Institute

FAC81: Janitorial Services - Environmentally Preferable

- List of qualified vendors
- Bidding process required use of FAC58/85 products only.

FAC85: Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies

1. General Purpose Cleaners
2. Other Floor Maintenance Chemicals
3. Disinfectants and Sanitizers (NO BLEACH OR QUATS)
4. Specialty Cleaners
5. Powered Janitorial Equipment & Service
6. General Cleaning Supplies, Equipment, and Service
7. Hand Soaps, Hand Sanitizers, and Personal Care Products
8. De-Icing and Snowmelt Products
9. Waste/Recycling/Composting Liners
10. Disposable Janitorial Paper Products
11. Entryway and Other Matting Systems
12. Microfiber Cleaning Service

FAC – Fac Maint. and Repair

Landscape Products and Services

FAC77: Landscaping Services, Tree Trimming, Catch Basin Cleaning, Snow Removal and Related Services

1. Grounds-Keeping and Landscaping
2. Snow Removal and Application of Deicers and Sand
3. Catch Basin Cleaning
4. Tree Trimming and Removal
5. Invasive Plant Control
6. Turf and Landscape Integrated Pest Management
7. Irrigation System Service and Repair (> \$10,000/job)

FAC79: Landscaping and Green Roof Products, Playground Equipment, Site Amenities and Related Products

Cat #	Category Name	EPP Product/Services Available
2	Turf and Landscape Products: Seed, Sod, Fertilizer, Pesticide and Related Products	Includes liquid organic fertilizers, organic plant stimulants, and organic soil amendments. Vendors required to provide soil testing, and some provide take-back and recycling services for packaging
3	Compost and Mulch	Free of pressure treated lumber, dust, or debris. Specifications indicated for different types of compost. Compost and mulch are natural soil amendments that assist in healthy soil development, and water reduction.
4	Soil Aggregate Products	Some recycled aggregate products available
5	Green Roof and Living Wall Materials and Supplies	Some vendors offer products made with recycled content
9	Related Specialty Environmentally Preferable Products	Products in this category must be made with recycled materials, be less toxic or provide one or more of other environmental benefits compared to competing products and materials serving the same purpose. Such EPPs may include, but not be limited to: Timbers or other products made with recycled plastic; erosion control bales made with recycled materials; less toxic athletic marking paint, and other similar products.

FAC88: Lawns & Ground Equipment, Parts and Services

- Some EPP equipment using alternative fuels
- Need to request from vendors

GRO – Food and Groceries

Food

Contracts: **GRO30:** Organic Food, **GRO32:** Organic Dairy Products, **GRO33:** Organic Baked Goods

- These contracts promote the MA laws and directives aimed at purchasing locally grown products, as well as more nutritional, pesticide-free produce and products, wherever possible.

Food Service Equipment and Products

GRO29: Foodservice Equipment – Related Maintenance and Repair Services, Foodservice Supplies and Equipment/Institutional Grade Products

- Most equipment must have Energy Star ratings
- Compostable dishware that is BPI certified



GRO34: Water: Bottled, Emergency Bottled, Water Filtration Services, Reverse Osmosis Systems

- **Water Filtration Services.** Systems supply single water cooler dispensers from National Sanitation Foundation (NSF)-certified filtration systems and can be installed into building's existing potable water supply and, if required, sanitary drainage system by Massachusetts-licensed plumbers.
- **Reverse Osmosis (RO) with Related Services and Supplies.** Water purification technology uses semipermeable membrane to remove larger particles from drinking water.

ITC – Info. Tech. - Hardware

Contracts: **ITC44**: IT Hardware, Computers, Laptops, Peripherals, NASPO/WSCA Agreement and **ITC47**: IT Hardware and Services



- Contracts requires that all equipment covered by Energy Star be shipped with the **power management features enabled**.
- Both contracts require vendors to provide take-back of products at the end of their useful life, whether for free or for a fee.
- In addition, Category 3 of ITC47 allows for re-furbished computers.
- Requires Electronic Products Environmental Assessment Tool (EPEAT):
 - ✓ **Design for the environment and human health**: Elimination or reduction of harmful constituents, use of recycled and bio-based materials, and design for recyclability and upgradeability.
 - ✓ **Energy efficiency and user health**: Energy Star and minimized health risks for users.
 - ✓ **Safe and environmentally sound End-of-Life management**: Availability of take-back and mgmt. services with emphasis on reuse, recycling, and safe materials mgmt.
 - ✓ **Manufacturer responsibility**: Compliance with environmental regulations and pollution prevention techniques, Eco-labels, third-party certifications, and disclosures regarding the use of toxic materials.

OFF - Office, Recreation & Ed. Supplies

OFF32: Photocopier, Facsimile, Digital Duplicator Equipment and Service; Photocopier, Facsimile, Digital Duplicator and Printer Supplies

- Energy Star (Not yet EPEAT for multifunctional devices)
- Remanufactured toner cartridges

OFF35: Art and Instructional School Supplies

- Identify art supplies certified “AP”, meaning they are certified non-toxic, by the [Art & Creative Materials Institute](#) (ACMI).
- Make sure to search for products that contain “recycled” content.
- Choose products without high-hazard chemicals such as lead or asbestos, ketones or xylene, acetone, phthalates, and fragrances, which often are added to markers.
- When purchasing markers, specify low odor or water based and fragrance free.
- ACMI is a nonprofit, international association of more than 200 companies that produce art, craft and other creative materials.

OFF36: Office Supplies, Recycled Paper and Envelopes

- Recycled content requirements for paper, envelopes and many plastic items



OFF - Office, Recreation & Ed. Supplies

OFF38: Office, School and Library Furniture, Accessories & Installation

- Powder Coating: “dry paint” application process reduces Volatile Organic Compounds (VOCs) in the application process, resulting in improved indoor air quality.
- Identify LEED (Leadership in Energy and Environmental Design) Green Building Rating Systems
- Cradle-to-Cradle (C2C) Protocol: reflects a strategy for developing ecologically-intelligent products that generate economic, social, and environmental benefits at every phase of their use, including material chemistry and safety, disassemble, recyclability, and other certifications (Greenguard, green seal FAC, ISO 14001):
- Flame Retardants: Semi-volatile organic compounds that migrate out of the products and into the air and resides in existing dust. Many flame retardant chemicals have been found to be persistent, bioaccumulative, and/or toxic, and there is growing concern about the impact of these chemicals in our environment.



OFF - Office, Recreation & Ed. Supplies

OFF44: Print, Copy & Mail Services and Printed Promotional Products

- Must recycle paper, cardboard, and used pallets and waste inks.
- Environmentally preferable chemicals for printing (formaldehyde-free photo-chemicals, vegetable-based or water-based inks, and low-VOC adhesives).
- All vendors must use recycled paper with a minimum 30% post-consumer content. For coated stocks used for color offset printing, the requirement is 10%.
- The recycled logo and/or the words “Printed on Recycled Paper” should be included on all printed materials.
- All vendors offer 50% and 100% post-consumer recycled content paper. Contact vendors for availability and pricing.



OVM and VEH



OVM8: Windshield and Glass Replacement for Vehicles

- This contract provides for the replacement service and parts for cracked or broken windshields. The vendor also recycles 100% of all windshields that are replaced.

OVM9: Short-Term Rental of Various Light Duty Vehicles

- Hybrid cars include the Toyota Prius, Nissan Altima, Ford Escape, and Toyota Camry. New England “hybrid branch” locations include Government Center in downtown Boston, Moody Street in Waltham, and Second Street in Manchester, NH. In addition to hybrids, these locations offer vehicles with higher MPG ratings (meaning more efficient), and other vehicles capable of running on ethanol fuel.

OVM10: Gasoline, Hybrid and Other Alternative Fuel Vehicles

- Fuel-efficient (gas/electric) hybrid vehicles for inclusion in their fleets.
- Evaluating new bids now

VEH84: Fuel Card & Fuel Management Services

- It also allows for the re-fueling of Alternative Fuel Vehicles (AFV), i.e. CNG, and any other new alternative fuel vehicles that currently are available or new technology that may be developed during the contract’s duration.

VEH92: Traffic Safety Products

- contains recycled traffic cones, channelizer drums, and flexible delineator posts (all include percentage of recycled plastic)

OVM and VEH

VEH96: Light, Medium, Heavy Duty OEM & NON-OEM Motorized Vehicle Parts, Refined Motor Oil, Lubricants

The following is a list of motorized vehicle parts that are most likely to be remanufactured or have a remanufactured option:

- ▼ Air Brake Compressor
- ▼ Air Conditioning Compressors
- ▼ Air Dryers
- ▼ Alternators
- ▼ **Antifreeze (recycled)**
- ▼ Anti-Lock Brake Systems (ABS)
- ▼ Batteries
- ▼ Blower Motors
- ▼ Brake Boosters
- ▼ Brake Calipers
- ▼ Brake Valves
- ▼ Carburetors
- ▼ Clutches
- ▼ Constant Velocity Drive Axles
- ▼ Crankshafts
- ▼ Cruise Control Products
- ▼ Cylinder Heads
- ▼ Distributors
- ▼ Engine Control Computers (ECC's)
- ▼ Engine Control Modules (ECM's)
- ▼ Engines
- ▼ Flywheels
- ▼ Fuel Injector Pumps
- ▼ Fuel Injectors
- ▼ Fuel Pumps
- ▼ Generators
- ▼ Headlamp Motors
- ▼ Intake Manifolds
- ▼ Mass Air Flow Sensors (MAF)
- ▼ Master Cylinders
- ▼ **Motor Oil (re-refined)**
- ▼ Power Steering Gear Boxes
- ▼ Power Steering Pumps
- ▼ Rack & Pinion Units
- ▼ Rear Axle
- ▼ Smog pumps
- ▼ Starters
- ▼ Transfer Case Motors
- ▼ Transmissions
- ▼ Truck Brake Shoes
- ▼ Turbo Chargers
- ▼ Vacuum Pumps
- ▼ Water Pumps
- ▼ Window Lift Motors
- ▼ Wiper Motors

Additional Information

- COMMBUYS: www.commbuys.com
- Websites of Interest:
 - OSD's Main Website: www.mass.gov/osd
 - EPP's Main Website: www.mass.gov/epp and click on icon for “find green cleaning products”
 - [OSD's Contract User Guides](#)
- Interested in becoming a sourcing team member???

Additional Information



Julia Wolfe
Director, Environmental Purchasing
Operational Services Division
Julia.wolfe@state.ma.us
617-502-8836

LBE Partner Spotlights

DCR Sustainable Equipment Program

- Fill gap in AEP program
- Late FY15 Purchases
- Parks maintenance: 120
Battery powered blowers, mowers, trimmers
- Electric Vehicles: 4
Golf carts (Salisbury Beach), ATVs
- Appliances: 77 EnergyStar ACs and Refrig
- Solar Trash Compactors: 95
- Program Cost: \$764,752
- Reduces fossil fuels, emissions, electricity, travel



56-Volt Lithium-ion Mower
– 45 minute cut time

DCR Lower Emission Equipment Program



Xtreme Green Electric Vehicles: 4WD, winch, emergency lights/PA/siren, trailer hitch, medilite transport
Myles Standish State Forest & Great Brook Farm State Park

Creating A Cleaner Energy Future For the Commonwealth

DDER

Massachusetts Department
of Energy Resources



Greenfield Community College

CoFFEE Project Spotlight



Greenfield CC was the first site to receive funding through the Commonwealth Facility Fund for Energy Efficiency (CoFFEE), upgrading inefficient lighting to LED technology.

Background

- DOER Leading by Example award winner
- Active Green Campus Team
- Long standing commitment to sustainability
- Recent projects:
 - **392 solar photovoltaic modules**
 - **Zero net energy greenhouse**
 - **Six geo-thermal wells for core cooling**

Installation

- Wireless *SpaceWide Technology* system with occupancy daylight sensors
- Philips EVO kits fit in the existing lighting bays , 30 minute install time, programmed with remote
- Preset dimming behaviors, adjusted easily reducing the expensive commissioning.

Project at a glance

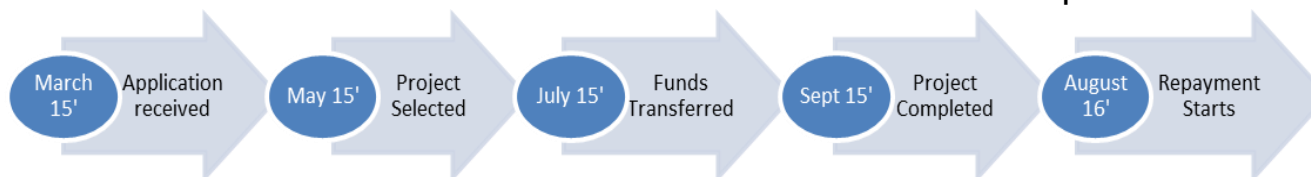
Location:..... 1 College Drive, Greenfield, MA
ECM(s):..... 409 LED Lighting Fixtures
Project Cost: \$63,055
Annual Cost Savings: \$14,488
Utility Incentive:..... \$40,900
Annual Energy Saving:

- Electricity:92,396kwh

Annual GHG Reductions:44 tonnes CO₂
Simple Payback:.....1.6 years

Results

- Leveraged funding without tapping into budget to invest in new technologies
- Energy efficient and cost effective, meets the needs of an academic environment
- Supported GCC pledge to a sustainable campus.



CoFFEE Project Photos



Existing T8 Fluorescent Lighting Fixtures.



LEDs to replace fluorescent lights



Classroom using low light setting (77% output) via daylight harvesting.



Occupied areas light up leaving unoccupied areas at reduced levels.

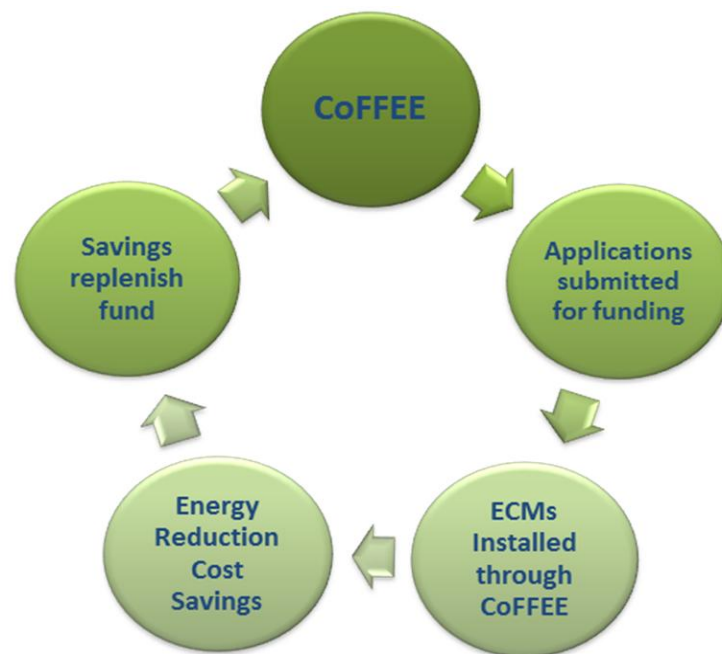
DCAMM Updates CoFFEE Green Revolving Loan Fund

Commonwealth Facility Fund for Energy Efficiency

Overview

- Green Revolving Loan Fund
- **Affordable and self sustaining**, debt is repaid through savings
- **Low-cost financing** mechanism for state agencies to fund energy/water conservation measures (ECMs)
- Target quick payback projects in the **\$10,000 to \$95,000 range**.
- Repayment of 85% of savings per year during payback period

Process



For more information contact:
Ryan Harold, 857-204-1449
Ryan.harold@state.ma.us

Accepting Applications **now through Dec. 18**
Please visit:

MASS.GOV/DCAMM/COFFEE



Creating A Cleaner Energy Future For the Commonwealth

DER

Massachusetts Department
of Energy Resources

New Ideas for Discussion

Pollinator Friendly

Using underutilized state lands to restore pollinator habitat:

- **Plant “bee friendly” plant species**
- **Eliminate pesticide/herbicide use**
- **Education & outreach**

1) Have you employed any of these or other strategies?

2) Would you be interested in implementing these strategies?

3) What do you see as major challenges?



Massachusetts Department
of Energy Resources

Water Conservation

Best practices for outdoor water conservation and reducing outdoor potable-water use:

- **Rainwater harvesting/reuse**
- **Drip-irrigation system**
- **Planting of native drought resistant species**



1) Have you employed any of these or other strategies?

Source: [USDA](#)

2) Would you be interested in implementing these strategies?

3) What do you see as major challenges?



Massachusetts Department
of Energy Resources

LBE Updates

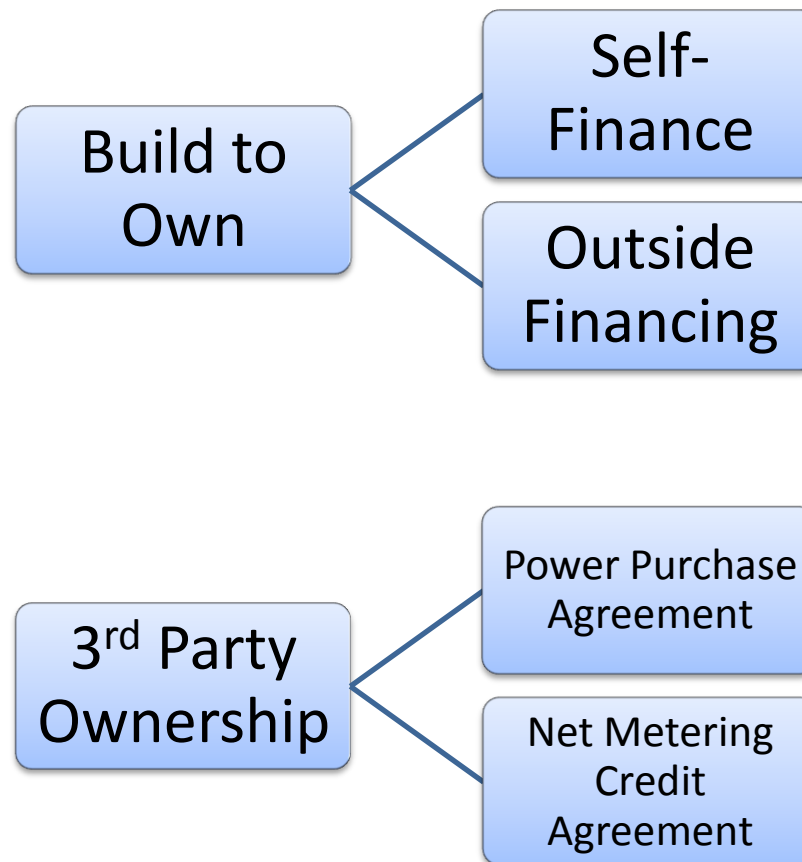
Solar Canopy Feasibility Studies



- Since September, LBE has been working w/ ICF, Inc. to study the feasibility of solar canopies on parking lots at 22 state facilities, including Higher Ed (9), Tewksbury Hospital and DCR (12)
- Three Phases:
 - ✓ Task 1 Complete (fatal flaw analysis)
 - Task 2 – Underway (interconnection & net metering)
 - Task 3 – Underway (cost & generation estimate)
 - 18 of 22 sites moved forward
 - Feasibility studies wrap up at end of 2015
- LBE to work collaboratively w/agencies to determine appropriate financing plan and move projects into procurement and installation for 2016

ICF
INTERNATIONAL®

Solar Canopy Financing



Solar Canopy Financing: Build to Own

Considerations

- State Entity Builds, Owns and Operates System
- Upfront cost
- Entity responsible for maintenance & repairs
- Competitive Procurement
- Entity gets full benefit of energy savings and SRECs

Financing Options

1. Self-Finance through capital budget
2. Obtain Outside Financing
 - CREBs: federal tax credit bond for RE projects
 - Estimated 1.5% interest rate
 - NEEIP: MA “green bond” for clean energy projects
 - Estimated 3.5% interest rate

Solar Canopy Financing: 3rd Party Ownership

Considerations

- Third party Builds, Owns & Operates System
- No upfront cost; no O&M responsibilities
- Competitive Procurement or through Energy Cooperative

Financing Options

1. Power Purchase Agreement

- Facility purchases electricity produced for fixed price/kWh over length of contract (usually 20 years)
- Ideal when energy produced can be used onsite

2. Net Metering Credit Agreement

- Facility receives lease payment & % discount on energy costs (through net metering credits) which can be applied to other utility accounts within the same load zone
- Ideal when little onsite usage



Massachusetts Department
of Energy Resources

Hypothetical Project: Cash Flow Scenarios

Project Assumptions	
Total Project Size	500 kW
Total Project Cost	\$1.75 M
Cost per Watt	\$3.50
Electricity Rate	\$.16/kWh
<i>Electricity Escalation</i>	2.0%
PPA Rate	\$0.115/kWh
NMC Benefit	25% savings

Project Benefits					
	Build to Own			Third Party Ownership	
	Self Finance	CREBs	NEEIP	PPA	NMC
Upfront Cost to Entity	\$1.75 M	\$350K (20%)	\$350K (20%)	\$0	\$0
Bond Financing	-	\$1.4 M	\$1.4 M	-	-
Bond Rate	-	1.5%	3.5%	-	-
Avg. Net Benefit (20 yrs)	\$179,002	\$100,310	\$87,835	\$43,425	\$29,876
20 Year Earnings	\$1.83 M	\$1.65 M	\$1.41 M	\$869K	\$597K

Solar Canopies and the Building Code



FEEDER GUTTER

PRIMARY GUTTER

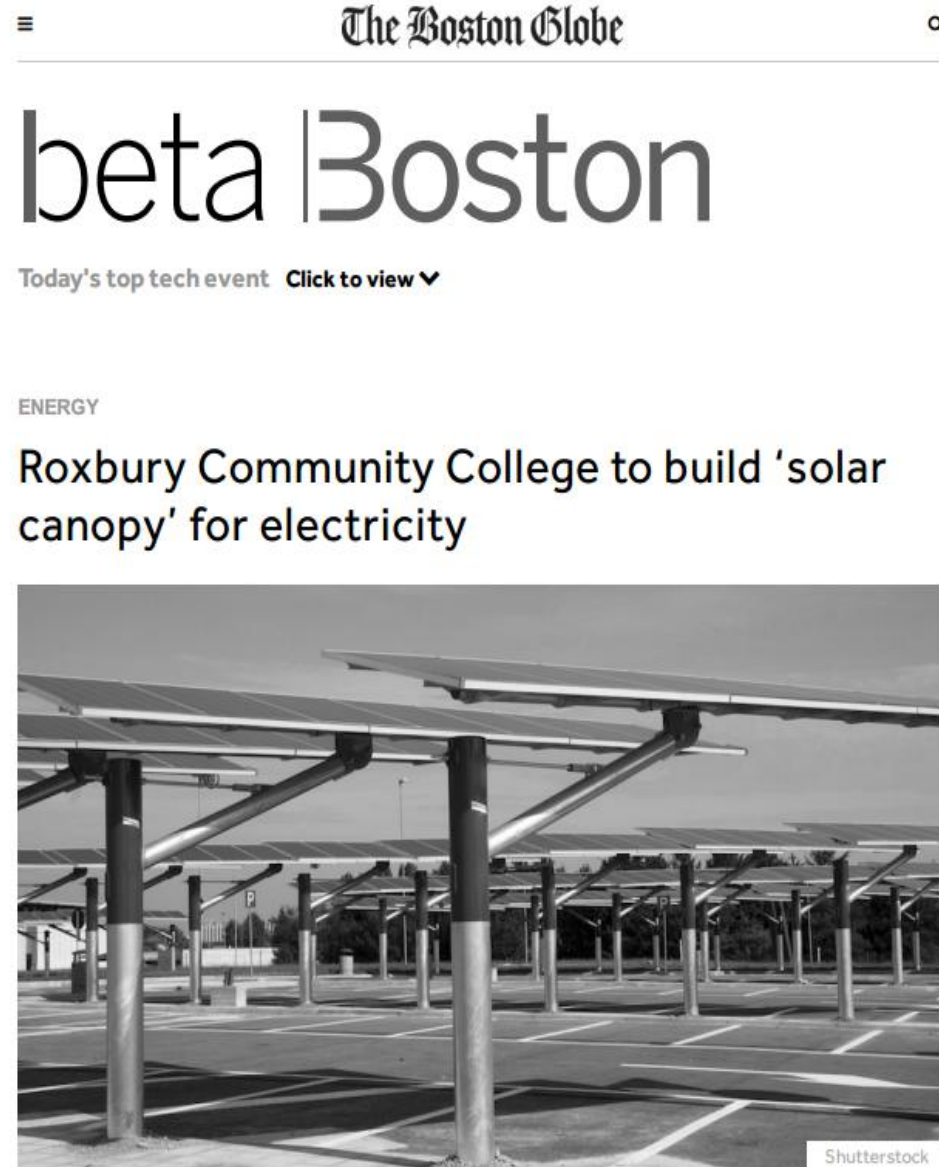
WATER MANAGEMENT

SOLAIRE GENERATION®

LBE Solar Canopy Grants

Recent Grant Awards

- \$50,000 to DCR for a 100 kW at Walden Pond
- \$146,000 to UMass Amherst for 292 kW
- \$224,000 for feasibility studies
- \$600,000 to Roxbury Community College for 937 kW
- \$1.02 million awarded, \$480k left



LBE Tracking Form Leaders

Congratulations to the following LBE Partners for submitting LBE Tracking Forms early!

- ☀ Bunker Hill Comm. College
- ☀ Greenfield Comm. College
- ☀ Mt. Wachusett Comm. College
- ☀ North Shore Comm. College
- ☀ UMass Lowell

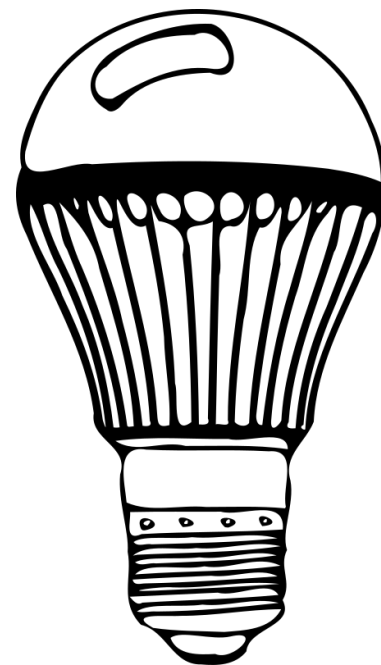


LBE Tracking Form Questions

- I thought there were dropdowns. Am I missing fields?
 - *MS Excel seems to have a few compatibility issues with the new versions. I can provide you with a different form.*
- Can I provide calendar year data?
- Do I report leased building data?
- Where do you get the square footage numbers?
- MEI data is different from our bills. What should we report?
- Should I include all of the vehicle fleet?
- Do I report refuse & recycling or only refuse for totals?
- Do I report water, water and sewer, building water, main meter water consumption?

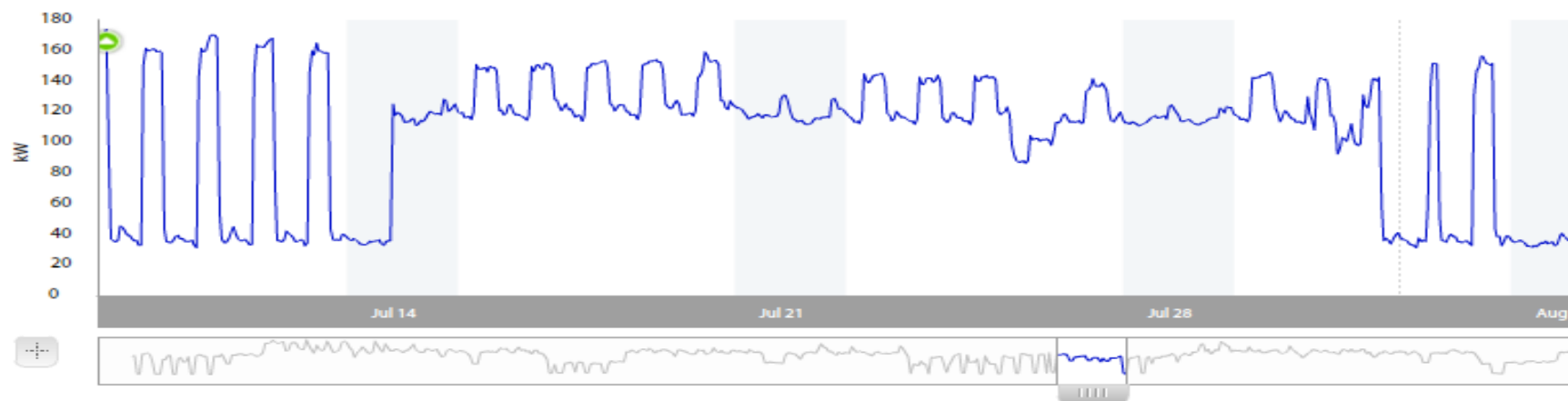
High-Efficiency Lighting Distribution

- 10 state agency/higher education campuses participated
- Over 30,100 high-efficiency bulbs distributed (includes over 4,000 LED bulbs at DOC facilities)
- **Over 1.2 million** estimated kWh savings at state facilities
- **Over \$158,000** estimated annual cost savings at state facilities
- All bulbs to be installed by Dec. 4



Commonwealth Building Energy Intelligence/EEMS

- Currently in procurement process
- DCAMM leading next-phase, with DOER as partner
- Short list of finalists
- Reviewing costs, approach, timeline and ease of use



LBE Awards Recap

State Agency:

- MA State College Building Authority (MSCBA)
- Clean Energy Partnership for Wastewater and Drinking Water Facilities

Higher Education

- Worcester State University
- UMass Boston

Municipal

- Town of Kingston
- Belmont Light

Individual

- Martha Grover (Melrose)
- Stephen Brown, Yvonne Jones, Raul Silva (DCR)



[Photos posted on EEA Flickr](#)



Massachusetts Department
of Energy Resources

Upcoming Events

- **Webinar: Reducing Plugload Energy Use**
 - 12/1, [RSVP here](#)
- **MA College and Univ. Recycling Coalition Fall Forum**
 - 12/10, Worcester Polytechnic Institute, [RSVP here](#)
- **Webinar: Tracking Water Savings and Recognizing Success**
 - 12/10, [RSVP here](#)

